U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

# Research Note

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## National Occupant Protection Use Survey - 1996
## Controlled Intersection Study

In 1996, the overall observed shoulder belt use rate was 61.5 percent, as measured by the National Occupant Protection Use Survey (NOPUS). This is compared to 58.0 percent observed in 1994. The NOPUS was conducted in the Fall of 1996 to estimate safety belt use in the U.S. This is the second in a series of Research Notes presenting the results of this survey.

NOPUS is composed of three separate studies: the ***moving traffic study,*** which provides information on overall shoulder belt use; the ***controlled intersection study,*** which provides more detailed information about shoulder belt use by type of vehicle and person characteristics and child restraint use; and the ***shopping center study,*** which provides information on rear-seat belt use. This note presents the results from the controlled intersection study. The results from the moving traffic study were released in a Research Note dated April 1997, ***Observed Safety Belt Use in 1996.***

### Data Collection Methodology

Data collection for the controlled intersection study was conducted for 40 minutes at each of 2,006 randomly selected intersections with stop signs or traffic signals. Pairs of observers recorded shoulder belt use for drivers and right-front passengers of passenger cars and light trucks (pickup trucks, vans, and sport utility vehicles), the vehicle's license plate number, and the age group, sex and race of the observed person. Age, sex, and race were based on the best judgment of the observers. Child restraint information was collected for children under five years old in the front and second seats of the vehicle. Every day of the week and all daylight hours (8 a.m. to 6 p.m.) were covered by the study. Commercial and emergency vehicles were excluded.

### General Results

Restraint use was observed for 49,387 drivers and 13,330 passengers in passenger cars and 22,200 drivers and 5,941 passengers in light trucks. Restraint use varied according to the driver's or passenger's age group, sex, race, and type of area where the data were collected. Table 1 compares observed rates between the 1994 and 1996 surveys. Tables 2 - 6 present detailed results from the 1996 study. Restraint use by specific vehicle type and available restraint system will be presented in a future Research Note.

**Table 1**
**NATIONAL**
**OCCUPANT PROTECTION USE SURVEY**
**Percent Restraint Use by Year,**
**Age, Sex, Race, and Urbanization**

| | Year | |
|---|---|---|
| | *1996* | *1994* |
| ***Age*** | | |
| Infant (less than 1 year) | 93.2 | 87.7 |
| Toddler (1 - 4 years) | 74.9 | 60.7 |
| Youth (5 - 15 years) | 64.6 | 57.7 |
| Young Adult (16 - 24 years) | 49.5 | 52.6 |
| Adult (25 - 69 years) | 62.4 | 59.1* |
| Seniors (over 69 years) | 68.8 | |
| ***Sex*** | | |
| Female | 68.0 | 64.4 |
| Male | 56.8 | 54.4 |
| ***Race*** | | |
| White | 62.6 | 59.6 |
| Black | 51.2 | 53.0 |
| Other | 58.0 | 54.6 |
| ***Urbanization*** | | |
| City | 61.1 | 57.7 |
| Suburban | 64.4 | 62.9 |
| Rural | 60.1 | 52.8 |

*1994 NOPUS collected only ***Adult (25 years or older)***

**A Note on Estimation Procedures**

The NOPUS is a multi-stage, probability-based sample survey. Consequently, each estimate has been statistically weighted according to the sample design and is subject to sampling variability. Estimates in the following tables are shown with two standard errors in parentheses. By simply adding and subtracting the standard errors from the estimate, an approximate 95% confidence interval can be created. This means that you can be 95% confident that the true use rate lies within this interval. More information about the sample design and estimation procedures are available from the National Center for Statistics and Analysis.

**Table 2**
**1996 NATIONAL OCCUPANT PROTECTION USE SURVEY**
**Percent Shoulder Belt Use by Age Group**
**(Estimates and 2 Standard Errors)**

| | Overall | Youth (5 - 15 years) | Young Adult (16 - 24 years) | Adult (25 - 69 years) | Senior (over 69 years) |
|---|---|---|---|---|---|
| Overall Belt Use | 61.5 (3.4) | 64.6 (7.6) | 49.5 (8.0) | 62.4 (3.6) | 68.8 (6.6) |
| Passenger Cars | 66.0 (3.8) | 67.4 (10.0) | 54.7 (7.0) | 66.6 (4.4) | 75.3 (6.4) |
| Drivers | 66.2 (3.6) | 79.2 (25.0) | 58.3 (7.0) | 66.5 (4.0) | 74.8 (5.8) |
| Passengers | 65.3 (6.4) | 64.5 (8.4) | 44.0 (12.4) | 67.4 (8.6) | 76.4 (8.4) |
| Light Trucks | 54.3 (4.2) | 59.6 (8.4) | 37.9 (14.6) | 56.0 (4.8) | 48.9 (10.6) |
| Drivers | 53.7 (4.8) | 42.7 (36.6) | 37.3 (18.0) | 55.3 (5.0) | 50.7 (10.4) |
| Passengers | 56.8 (5.8) | 60.9 (8.6) | 39.8 (11.8) | 59.7 (7.4) | 45.5 (13.2) |

**Table 3**
**1996 NATIONAL OCCUPANT PROTECTION USE SURVEY**
**Percent Shoulder Belt Use by Urbanization**
**(Estimates and 2 Standard Errors)**

| | Overall | City | Suburban | Rural |
|---|---|---|---|---|
| Overall Belt Use | 61.5 (3.4) | 61.1 (3.4) | 64.4 (3.0) | 60.1 (7.6) |
| Passenger Cars | 66.0 (3.8) | 64.6 (3.6) | 68.5 (3.2) | 65.6 (10.0) |
| Drivers | 66.2 (3.6) | 65.6 (4.0) | 69.1 (3.4) | 64.3 (9.0) |
| Passengers | 65.3 (6.4) | 60.7 (4.2) | 65.3 (4.6) | 69.6 (13.4) |
| Light Trucks | 54.3 (4.2) | 53.6 (4.8) | 55.7 (5.4) | 54.1 (7.6) |
| Drivers | 53.7 (4.8) | 53.3 (5.2) | 55.3 (5.4) | 53.2 (9.0) |
| Passengers | 56.8 (5.8) | 54.6 (5.8) | 57.9 (7.2) | 57.5 (9.6) |

**Table 4**
**1996 NATIONAL OCCUPANT PROTECTION USE SURVEY**
**Percent Shoulder Belt Use by Race and Sex**
**(Estimates and 2 Standard Errors)**

| | Race | | | Sex | |
|---|---|---|---|---|---|
| | White | Black | Other | Female | Male |
| Shoulder Belt Use | 62.6 (3.0) | 51.2 (5.8) | 58.0 (13.0) | 68.0 (3.2) | 56.8 (3.6) |
| Passenger Cars | 68.1 (3.2) | 53.3 (5.8) | 57.4 (21.8) | 69.3 (3.8) | 62.8 (4.2) |
| Drivers | 68.0 (2.8) | 54.7 (7.2) | 58.8 (18.6) | 69.5 (3.4) | 63.7 (4.4) |
| Passengers | 68.5 (6.4) | 48.4 (5.8) | 52.9 (31.8) | 68.9 (7.0) | 56.3 (5.0) |
| Light Trucks | 53.6 (4.2) | 42.1 (15.4) | 58.6 (12.8) | 64.5 (4.4) | 50.0 (5.8) |
| Drivers | 53.4 (4.8) | 42.7 (19.0) | 55.7 (14.2) | 64.1 (6.4) | 50.8 (5.6) |
| Passengers | 54.7 (6.0) | 39.9 (12.4) | 72.0 (14.8) | 65.1 (6.4) | 42.1 (9.8) |

**Results - Child Restraints**

Observing child restraint use at randomly selected sites, even at the 2,006 sites in this study, poses certain collection and estimation problems. Since only 8 percent of the resident population of the country are children under the age of 5, observing enough children in passenger vehicles to produce reliable estimates is difficult. During the controlled intersection collection, a total of 153 infants and 513 toddlers were observed. Consequently, estimates of child restraint use may be subject to large sampling errors and should be interpreted with caution. When the number of children observed was small, estimates were made only for overall restraint use.

For infants, the observed restraint type was always child safety seats. However, among toddlers in passenger cars, 36.8 percent of front-seat toddlers and 29.8 percent of back-seat toddlers were observed in safety seats, while 14.6 percent of front-seat toddlers and 30.6 percent of back-seat toddlers were observed using safety belts. Among toddlers in light trucks, 46.9 percent of front-seat toddlers and 55.7 percent of back-seat toddlers were observed in safety seats, while 20 percent of both front-seat and back-seat toddlers were observed using safety belts. Note that no attempt was made to measure child safety seat misuse in this study.

**Table 5**
**1996 NATIONAL**
**OCCUPANT PROTECTION USE SURVEY**
**Percent Children Under 5 Years Restrained**
**(Estimates and 2 Standard Errors)**

| | Restrained |
|---|---|
| **Overall** | **61.2 (13.2)** |
| Infants (less than 1 year) | 85.2 (14.6) |
| Toddlers (1- 4 years) | 60.1 (15.0) |
| Passenger Car | 56.5 (16.0) |
| Light Truck | 68.7 (19.7) |
| Front Seat | 61.0 (13.1) |
| Back Seat | 61.5 (19.6) |
| Rush Hour | 55.2 (25.1) |
| Non-Rush Hour | 62.0 (14.7) |
| Weekday | 62.2 (14.7) |
| Weekend | 52.6 (20.9) |
| City | 68.9 (10.0) |
| Suburban | 78.6 (12.1) |
| Rural | 35.6 (22.0) |

**Table 6**
**1996 NATIONAL**
**OCCUPANT PROTECTION USE SURVEY**
**Percent Restraint Use by Infant/Toddler and Driver Sex**
**(Estimates and 2 Standard Errors)**

| Driver Shoulder Belt Use with | Restraint Use |
|---|---|
| Restrained Infant | 82.1 (12.6) |
| Unrestrained Infants | 37.4 (49.0) |
| Restrained Toddler | 83.8 (7.2) |
| Unrestrained Toddler | 25.4 (18.6) |
| No Children | 61.4 (3.4) |
| **Child Restraint Use for** | |
| Infant with Restrained Driver | 92.5 (10.6) |
| Toddler with Restrained Driver | 86.3 (8.4) |
| Infant with Unrestrained Driver | 62.4 (39.2) |
| Toddler with Unrestrained Driver | 23.5 (14.8) |
| **Child Restraint Use for** | |
| Infant with Female Driver | 88.2 (13.6) |
| Infant with Male Driver | 78.4 (33.0) |
| Toddler with Female Driver | 64.4 (18.2) |
| Toddler with Male Driver | 54.7 (27.2) |

For additional copies of this research note, please call (202) 366-4198 or fax your request to (202) 366-7078. For questions regarding the data reported in this research, contact Nancy Bondy [202-366-5353] or Dennis Utter [202-366-5351] of the National Center for Statistics and Analysis. This research note and other general information on highway traffic safety may be accessed by Internet users at:

*http://www.nhtsa.dot.gov/people/ncsa.*

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